The following listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended): A process for recovery of hydrogen from ~~in~~ an effluent rich in hydrocarbons and that also contains hydrogen and a light olefin fraction, said process comprising:

- in a stage a), contacting said effluent rich in hydrocarbons with at least one reagent, that can react with said olefins to form a complex or a molecule, ~~and so as~~ to form a substantially olefin-free effluent;
- in a stage c), contacting at least a part of the substantially olefin-free effluent with a composition comprising at least one unsaturated compound in the presence of a catalyst under hydrogenation conditions ~~so as~~ to hydrogenate at least a portion of said unsaturated compound by at least a portion of the hydrogen ~~that is~~ present in said substantially olefin-free effluent thereby forming a hydrogen-depleted effluent containing hydrogenated hydrocarbons; and
- in a stage d), dehydrogenating ~~of~~ hydrogenated hydrocarbons present in ~~the~~ said hydrogen-depleted effluent ~~that~~ from stage c) ~~so as~~ to recover a stream containing hydrogen.

2. (Currently Amended): A process according to claim 1, further comprising, in ~~characterized in that it also comprises~~ a stage b), separating ~~for separation in which~~ said complexes or said molecules ~~are removed~~ from ~~the~~ said substantially olefin-free effluent ~~that is~~

obtained from stage a) before introducing at least part of said substantially olefin-free effluent into stage c) ~~is fed~~.

3. (Currently Amended): A process according to claim 1, wherein said ~~the~~ composition comprising ~~that comprises~~ at least one unsaturated compound used in stage c) is a naphtha fraction ~~obtained by atmospheric distillation of a crude petroleum and whose starting and end points of distillation are encompassed between 80 and 180°C~~.

4. (Currently Amended): A process according to claim 1, wherein the catalyst ~~that is~~ used in stage c) comprises nickel ~~that is~~ deposited on a mineral substrate ~~that is~~ selected from ~~the group that consists of~~ silica and ~~or~~ alumina.

5. (Currently Amended): A process according to claim 1, wherein at least one alkylation reaction is performed in stage a) ~~comprises at least one alkylation reaction~~ and said ~~wherein the~~ reagent used in ~~said~~ stage a) comprises at least one aromatic compound having ~~comprising~~ 6 to 12 carbon atoms per molecule.

6. (Currently Amended): A process according to claim 5, wherein said at least one alkylation reaction is carried out in the presence of a catalyst ~~by a vapor-phase process, a liquid-phase process or a mixed gaseous/liquid phase process~~.

7. (Currently Amended): A process according to claim 6, wherein the

dehydrogenation reaction performed in ~~of~~ stage d) is a catalytic reforming reaction.

8. (Currently Amended): A process according to claim 7, wherein the catalyst of said catalytic ~~the~~ reforming reaction comprises a chlorinated alumina substrate on which is ~~was~~ deposited at least one metal selected from ~~contained in the group that consists of~~ platinum, rhenium, iridium, tin and germanium.

9. (Currently Amended): A process according to claim 7, wherein the composition ~~is~~ used in stage c) comprises at least a ~~one~~ portion of the products obtained from said catalytic reforming reaction.

10. (Currently Amended): A process according to claim 1, wherein said ~~hydrocarbon-rich~~ effluent rich in hydrocarbons is a dry gas fraction obtained from a fluidized-bed catalytic cracking stage.

11. (Currently Amended): A process according to claim 1, wherein said ~~hydrocarbon-rich~~ effluent rich in hydrocarbons is a dry gas fraction obtained from a ~~process selected from the group that consists of~~ steam reforming process, a catalytic reforming process, a gasification process, a partial oxidation process, an autothermal process that combines reforming and partial oxidation, a coking process, or a ~~and~~ visbreaking process.

12. (New): A process according to claim 3, wherein said naphtha fraction is obtained

by atmospheric distillation of a crude petroleum.

13. (New): A process according to claim 12, wherein the starting and end points of distillation for said naphtha fraction are encompassed between 80 and 180°C.

14. (New): A process according to claim 6, wherein said at least one alkylation reaction is a vapor-phase process.

15. (New): A process according to claim 6, wherein said at least one alkylation reaction is a liquid-phase process.

16. (New): A process according to claim 6, wherein said at least one alkylation reaction is a mixed gaseous/liquid phase process.

17. (New): A process according to claim 1, wherein the dehydrogenation reaction performed in stage d) is a catalytic reforming reaction.

18. (New): A process according to claim 8, wherein the composition used in stage c) comprises at least a portion of the products obtained from said catalytic reforming reaction.

19. (New): A process according to claim 1, wherein said effluent rich in hydrocarbons is a dry gas fraction obtained from a catalytic reforming process.

20. (New): A process according to claim 1, wherein the composition used in stage c) comprises products obtained from a catalytic reforming reaction.

21. (New): A process according to claim 1, wherein said effluent rich in hydrocarbons is a dry gas fraction obtained from a fluidized-bed catalytic cracking process.

22. (New): A process according to claim 1, wherein said effluent rich in hydrocarbons contains 5-50 mol% of hydrogen.

23 (New): A process according to claim 2, wherein said composition comprising at least one unsaturated compound used in stage c) is a naphtha fraction.

24. (New): A process according to claim 2, wherein the catalyst used in stage c) comprises nickel deposited on a mineral substrate selected from silica and alumina.

25. (New): A process according to claim 1, wherein at least one alkylation reaction is performed in stage a) and said reagent used in stage a) comprises at least one aromatic compound having 6 to 12 carbon atoms per molecule.

26. (New): A process according to claim 25, wherein said at least one alkylation reaction is carried out in the presence of a catalyst.

27. (New): A process according to claim 26, wherein the dehydrogenation reaction performed in stage d) is a catalytic reforming reaction.

28. (New): A process according to claim 27, wherein the catalyst of said catalytic reforming reaction comprises a chlorinated alumina substrate on which is deposited at least one metal selected from platinum, rhenium, iridium, tin and germanium.

29. (New): A process according to claim 7, wherein the composition used in stage c) comprises at least a portion of the products obtained from said catalytic reforming reaction.

30. (New): A process according to claim 1, wherein said effluent rich in hydrocarbons is a dry gas fraction obtained from a fluidized-bed catalytic cracking stage.

31. (New): A process according to claim 1, wherein said effluent rich in hydrocarbons is a dry gas fraction obtained from a steam reforming process, a catalytic reforming process, a gasification process, a partial oxidation process, an autothermal process that combines reforming and partial oxidation, a coking process, or a visbreaking process.